NON-PUBLIC?: N
ACCESSION #: 8812020136
LICENSEE EVENT REPORT (LER)

FACILITY NAME: THREE MILE ISLAND, UNIT 1 PAGE: 1 OF 3

DOCKET NUMBER: 05000289

TITLE: High RCS Pressure Reactor Trip Due to Main Turbine EHC Malfunction
EVENT DATE: 10/30/88 LER #: 88-006-00 REPORT DATE: 11/28/88

OPERATING MODE: POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Dennis V. Hassler
TMI-1 Licensing Engineer TELEPHONE: 717-948-8833

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: JJ COMPONENT: JX MANUFACTURER: L045
X JJ RLY G084

REPORTABLE TO NPRDS: NO
NO

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 8:49 a.m. on October 30, 1988 the main turbine tripped to manual with a coincident array of about 8 alarms. Generated megawatts were rapidly decreasing and the main steam safety valves began to lift. Within 4 seconds of the initiation of the event, the reactor tripped on high RCS pressure. The post trip response was normal. Two conditions required operator response. A main steam safety valve did not completely reseat. Operators lowered the steam header pressure control setpoint about 50 psig and the valve reseated. In addition, the main feedwater startup control valve did not control in automatic and required operator action. This second problem has been corrected by retuning the ICS modules.

The reactor trip was caused by rapid closure of the main turbine control valves. The closure initiation is attributed to be a result of an erroneous signal being generated within the EHC. Investigation revealed an erratic power supply that

required replacement along with a relay in the #4 intercept valve test circuitry within the EHC cabinets. This relay problem was not considered to be related to the root cause of the event. It is believed that the erratic power supply is the most likely initiator of the event.

END OF ABSTRACT

HIGH RCS PRESSURE REACTOR TRIP DUE
TO TURBINE EHC MALFUNCTION

I. Plant Operating Conditions Before the Event

TMI-1 was at 100% full power with the ICS in full automatic. No other work was in progress or major equipment out of service that contributed to the cause of the event or mitigation of the event.

II. Status of Structures, Components, or Systems that were Inoperable at the Start of the Event and that Contributed to the Event

The ICS was in full automatic. No major equipment was inoperable. There was no equipment out of service that contributed to the event.

III. Event Description

At 8:49 a.m. on October 30, 1988 the main turbine (TA/-) tripped to manual with a coincident array of about 8 alarms. Generated megawatts were rapidly decreasing and the main steam safety valves (SB/RV) began to lift. Within 4 seconds of the initiation of the event, the reactor tripped on high RCS pressure. Two conditions required operator response. A main steam safety valve did not completely reseat. Operators lowered the steam header pressure control setpoint about 50 psig and the valve reseated. In addition, the main feedwater startup control valve (SJ/PCV) FW-V-16A did not control in automatic and required operator action. This problem has been corrected by retuning the ICS modules (JA/IMOD).

The reactor trip was caused by rapid closure of the main turbine control valves (TA/PCV). The closure initiation is attributed to an erroneous signal being generated within the EHC (TA/-). Investigation revealed an erratic power supply (JJ/JX) that required replacement along with a relay (JJ/RLY) in the #4 intercept valve test circuitry (JJ/V) within the EHC cabinets. This relay problem was not considered to be related to the root cause of the event. It is believed that the erratic power supply is the most likely initiator of the event.

As an RPS trip, this event is reportable in accordance with 50.73 a.2.iv.

IV. Component Failure Data

The following components were replaced as a result of this event. A +30VDC power supply was replaced due to voltage dips along with a relay in the #4 intercept valve circuitry.

V. Automatic or Manually Initiated Safety System Responses

All safety systems functioned in accordance with their design. Upon detection of a high RCS pressure signal, the RPS cabinets (JD/CAB) tripped causing control and safety rod group (AC/-) insertion.

VI. Assessment of the Safety Consequences and Implications of the Event

All safety systems performed as designed. There were no adverse safety consequences as a result of this incident. This incident resulted in a high pressure reactor trip with normal post-trip response.

VII. Previous Events of a Similar Nature

None

VIII. Corrective Actions Planned

Upon troubleshooting, two components were replaced. A power supply in the EHC system was replaced. In addition, a relay for the #4 intercept valve test circuit was replaced. Contacts from the EHC system to the ICS system were monitored during startup and power escalation. These contacts were the power-load-imbalance and turbine high load limit inputs to the ICS from the EHC.

No anomalies were observed during the startup.

The power supply with the voltage dips has a backup power supply that was functioning. Loss of voltage from one power supply would not have caused the incorrect control action; however, the erratic voltage output may have affected the EHC and caused the inappropriate valve closure.

No further corrective action is planned.

NOTE: The Energy Industry Identification System (EIIS), System Identification (SI) and Component Function Identification (CFI) Codes are included in brackets, "SI/CFI!", where applicable, as required by 10 CFR

50.73(b)(2)(ii)(F).

ATTACHMENT 1 TO
812020136 PAGE 1 OF 1

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November 28, 1988
C311-88-2159

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 230555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
LER 88-006-00

This letter transmits Licensee Event Report (LER) No. 88-006-00 regarding the High RCS Pressure Reactor Trip Due to Main Turbine EHC Malfunction. The trip occurred on October 30, 1988. Public health and safety were unaffected.

This LER is being submitted pursuant to 10 CFR 50.73, using the required NRC forms (attached). NRC Form 366 contains an abstract which provides a brief description of the event. For a complete understanding of the event, refer to the text of the report which appears on Form 366A.

Sincerely,

H. D. Hukill
Vice President & Director, TMI-1

HDH/DVH/spb :1302A

cc: J. Stolz
R. Hernan
W. Russell

R. Conte

Attachment

GPU Nuclear Corporation is a subsidiary of the General Public Utilities Corporation

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